

Appl. No.: 10/538,982

Response to Office communication dated: 3/27/07

Attorney Docket: LUNGBJ/107/PC/US

REMARKS

No claims are being added or cancelled. Claims 15 and 18 are being amended. Upon entry of this amendment claims 15-18 and 20-27 will be pending.

The amendment to claim 15 is supported by claim 18 and the specification at paragraphs 0009, 0060 and 0090. The amendment to claim 18 cancels features moved to parent claim 15. The amendment adds no new matter.

This amendment is being filed under 37 C.F.R. 1.116 governing amendment after final rejection. This amendment is appropriate for entry under Rule 1.116 since it does not raise new issues and places the application in allowable condition and/or places the application in better form for consideration of appeal.

Applicant notes that the Examiner has indicated that claims 16, 18 and 20-27 contain patentable subject matter.

The rejection under 35 U.S.C. §103(a).

Claims 15 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,334,854 to Graat in view of U.S. Patent No. 6,295,937 to Nakanishi.

Claims 15 and 17 were separately rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,049,063 to Kishida in view of U.S. Patent No. 6,295,937 to Nakanishi.

The cited combinations of Graat and Nakanishi or Kishida and Nakanishi do not teach or suggest at least 1) the flow rate of fuel oil output and the flow rate of air are adjusted automatically, simultaneously and proportionally by regulating the rotating speed of respective electric motors of the fuel supplying means and the air blowing means or 2) a fuel oil switch determining unit for determining whether the kind of fuel oil is varied and calculating required flow rate of air based on corresponding preset air/oil ratio, and regulating the air blowing means fan.

- 1) The flow rate of fuel oil output and the flow rate of air are adjusted automatically, simultaneously and proportionally by regulating rotating speed of respective electric motors of the fuel supplying means and the air blowing means.

In the Graat reference (US4334854), the volume of air and the volume of fuel oil are controlled by the apertures 10 and the control valve 115. In the Kishida reference (US5049063), the volume of air and the volume of fuel oil are controlled by the flow control valve 16 and the flow control valve 14. As can be seen from the above, neither the Graat reference nor the Kishida reference teaches or suggests control of the volume of fuel oil and the volume of air by regulating rotating speed of respective electric motors of the fuel supplying means and the air blowing means.

In the Nakanishi reference (US6295937), the volume of air and the volume of fuel oil are adjusted by controlling the rotational speed of the fan 16 through the rotational speed variation means 53b and controlling the flow rate of the fuel feed means 3 through fuel feed rate variation means 53c. It should be noted that, the fuel pump acting as a fuel feed means 3 is an electromagnetic pump (see lines 44-46 of column 5 in the Nakanishi description). According to the working principle of electromagnetic pumps, the manner of controlling volume of fuel oil for the electromagnetic pump is obviously different than regulating the rotating speed of the fuel feed means electric motors. As can be seen from the above, the Nakanishi reference does not teach or suggest control of the volume of fuel oil and the volume of air by regulating rotating speed of electric motors of the fuel supplying means and the air blowing means.

Thus, the above feature is not disclosed by the Graat, Kishida or Nakanishi references, singly or in combination. Amended claim 15, and claims dependant therefrom, are patentable for at least these reasons.

2) A fuel oil switch determining unit for determining whether the kind of fuel oil is varied, and calculating required flow rate of air based on corresponding preset air/oil ratio, and regulating the air blowing means fan.

In the Graat reference (US4334854), different type of fuel are related (see lines 36-39 of column 6 in the Graat description), but no component, which is used for determining whether the kind of fuel oil is varied, calculating required flow rate of air based on corresponding preset air/oil ratio, and regulating the blower fan to blow air, is provided in Graat. Similarly, neither the Kishida reference (US5049063) nor the Nakanishi reference (US6295937) discloses a fuel oil switch determining unit with the above recited features.

Thus, the above feature is not disclosed by the Graat, Kishida or Nakanshi references, singly or in combination. Amended claim 15, and claims dependant therefrom, are patentable for at least these reasons.

3) Claim 15 is patentable for additional reasons.

In the amended claims the flow rate of fuel oil output by the fuel supplying means and flow rate of air blown by the air blowing means are adjusted automatically, simultaneously and proportionally by regulating the rotating speed of respective electric motors of the fuel supplying means and the air blowing means by said controller. The flow rates are based on preset air/oil ratio, and thus the air valve and the fuel oil regulating valve of mechanical type in prior art are not needed.

Moreover, when a different kind of fuel oil is used, a different flow rate of air will be blown based on corresponding preset air/oil ratio according to fuel oil switch determining unit. These features and functionality are not seen in the cited references. Amended claim 15, and claims dependant therefrom, are patentable for at least these reasons.

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In summary, Applicants have addressed each of the rejections within the present Office Action. It is believed the application now stands in condition for allowance, and prompt favorable action thereon is respectfully solicited.

The Examiner is invited to telephone Applicant(s)' attorney at 860.527.9211 if it is deemed that a telephone conversation will hasten prosecution of this application.

Respectfully submitted,
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